

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) A channel-estimating apparatus comprising:

an input unit operable to receive several pieces of channel information from a plurality of receivers including a first receiver and a second receiver, wherein:

the first receiver performs a MIMO communication with a first transmitter through a first channel;

the second receiver performs the MIMO communication with a second transmitter other than the first transmitter through a second channel other than the first channel;

the first receiver receives signals from the second transmitter through a third channel other than the first channel; and

the second receiver receives signals from the first transmitter through a fourth channel other than the second channel; ~~said plurality of receivers being operable to perform MIMO communication through a plurality of channels;~~

an estimating unit operable to collectively estimate statuses of ~~the~~ a plurality of channels including the first, second, third and fourth channels, the estimating unit collectively estimating the statuses in accordance with the several pieces of channel information received by ~~the said~~ input unit, whereby estimation results are generated; and

an output unit operable to output ~~feed~~ the estimation results ~~into said~~ to the plurality of receivers.

Claim 2 (Currently Amended) ~~The~~ A channel-estimating apparatus as defined in claim 1, wherein each of ~~the said~~ plurality of receivers includes ~~comprises~~ a plurality of antennas and a plurality of receiving units, each of ~~said~~ the plurality of receiving units being connected to a

corresponding ~~antenna~~ ~~one of said~~ the plurality of antennas, and wherein ~~each~~ of the several pieces of channel information represent ~~is~~ received electrical power of a signal received by each of ~~said~~ the plurality of receiving units.

Claim 3 (Currently Amended) The~~A~~ channel-estimating apparatus as defined in claim 2, wherein ~~said~~ the estimating unit divides the received electrical power of the signal received by each of the plurality of receiving units by ~~a each~~ predetermined electrical power value, to thereby generate ~~thereby generating~~ the estimation results.

Claim 4 (Currently Amended) The~~A~~ channel-estimating apparatus as defined in claim 1, wherein ~~said~~ the estimating unit generates the estimation results for all of the plurality of channels.

Claim 5 (Currently Amended) The~~A~~ channel-estimating apparatus as defined in claim 4, wherein the generated estimation results include individual pieces of estimation results, a number of the individual pieces of estimation results being the same as ~~are a combination of a number of channels of the plurality of channels as many pieces of estimation results as the plurality of~~ ~~channels.~~

Claim 6 (Currently Amended) The~~A~~ channel-estimating apparatus as defined in claim 2, wherein each of ~~said~~ the plurality of receiving units possesses weighting coefficients for use in weighting the received electrical power, and wherein ~~said~~ the estimating unit generates

coefficients as the estimation results, the coefficients generated by the estimating unit ~~being~~ corresponding to the weighting coefficients.

Claim 7 (Currently Amended) TheA channel-estimating apparatus as defined in claim 6, wherein ~~said~~ the output unit outputs ~~feeds~~ a coefficient set ~~into~~ ~~said~~ to the plurality of receivers, the coefficient set including the coefficients generated by the estimating unit.

Claim 8 (Currently Amended) TheA channel-estimating apparatus as defined in claim 7, wherein the coefficients included in the coefficient set correspond in number to all of ~~said~~ the plurality of antennas possessed by ~~said~~ all of the plurality of receivers.

Claim 9 (Currently Amended) MIMO communication-adapted communication equipment, comprising:

an input unit operable to receive several pieces of channel information from a plurality of receivers including a first receiver and a second receiver, wherein:

the first receiver performs a MIMO communication with a first transmitter through a first channel;

the second receiver performs the MIMO communication with a second transmitter other than the first transmitter through a second channel other than the first channel;

the first receiver receives signals from the second transmitter through a third channel other than the first channel; and

the second receiver receives signals from the first transmitter through a fourth channel other than the second channel;

~~, said plurality of receivers being operable to perform MIMO communication through a plurality of channels;~~

an estimating unit operable to collectively estimate statuses of ~~the~~ a plurality of channels including the first, second, third and fourth channels, the estimating unit collectively estimating the statuses in accordance with the several pieces of channel information received by ~~the said~~ input unit, whereby estimation results are generated; and

an output unit operable to output ~~feed~~ the estimation results ~~into~~ to the said plurality of receivers.

Claim 10 (Currently Amended) A communication system comprising:

a plurality of receivers including a first receiver and a second receiver, wherein:

the first receiver performs a MIMO communication with a first transmitter through a first channel;

the second receiver performs the MIMO communication with a second transmitter other than the first transmitter through a second channel other than the first channel;

the first receiver receives signals from the second transmitter through a third channel other than the first channel; and

the second receiver receives signals from the first transmitter through a fourth channel other than the second channel; and

~~operable to provide MIMO communication through a plurality of channels; and~~

a channel-estimating apparatus operable to estimate statuses of ~~the~~ a plurality of channels including the first, second, third and fourth channels,

wherein ~~said~~ the channel-estimating apparatus includes:

an input unit operable to receive several pieces of channel information from ~~said~~
the plurality of receivers;

an estimating unit operable to collectively estimate the statuses of the plurality of
channels in accordance with the several pieces of channel information received by ~~said~~ the input
unit, whereby estimation results are generated; and

an output unit operable to output ~~feed~~ the estimation results ~~into said~~ to the
plurality of receivers.

Claim 11 (Currently Amended) TheA communication system as defined in claim 10,
wherein each of ~~said~~ the plurality of receivers includes a plurality of antennas and a plurality of
receiving units, each of ~~said~~ the plurality of receiving units being connected to a corresponding
antenna ~~one of said~~ the plurality of antennas, and wherein ~~each of~~ the several pieces of channel
information represent ~~is~~ received electrical power of a signal received by each of ~~said~~ the
plurality of receiving units.

Claim 12 (Currently Amended) TheA communication system as defined in claim 11,
wherein ~~said~~ the estimating unit divides the received electrical power of the signal received by
each of the plurality of receiving units by ~~each~~ a predetermined electrical power value, to thereby
generate ~~generating~~ the estimation results.

Claim 13 (Currently Amended) TheA communication system as defined in claim 10,
wherein ~~said~~ the estimating unit generates the estimation results for all of the plurality of
channels.

Claim 14 (Currently Amended) TheA communication system as defined in claim 13, wherein the generated estimation results include individual pieces of estimation results, a number of the individual pieces of estimation results being the same as~~are a combination of a number of~~ channels of the plurality of channels~~as many pieces of estimation results as the plurality of~~ channels.

Claim 15 (Currently Amended) TheA communication system as defined in claim 11, wherein each of ~~said~~ the plurality of receiving units possesses weighting coefficients for use in weighting the received electrical power, and wherein ~~said~~ the estimating unit generates coefficients as the estimation results, the coefficients generated by the estimating unit~~being~~ corresponding to the weighting coefficients.

Claim 16 (Currently Amended) TheA communication system as defined in claim 15, wherein ~~said~~ the output unit outputs~~feeds~~ a coefficient set ~~into~~~~said~~ to the plurality of receivers, the coefficient set including the coefficients generated by the estimating unit.

Claim 17 (Currently Amended) TheA communication system as defined in claim 16, wherein the coefficients included in the coefficient set correspond in number to all of ~~said~~ the plurality of antennas possessed by ~~said~~ all of the plurality of receivers.

Claim 18 (Currently Amended) TheA communication system as defined in claim 10,
wherein the MIMO communication is made through antennas possessed by at least two receivers
of among said the plurality of receivers.